ISSN (print) 0093-4666 © 2015. Mycotaxon, Ltd. ISSN (online) 2154-8889

MYCOTAXON

http://dx.doi.org/10.5248/130.57

Volume 130, pp. 57–59 *January–March 2015*

Antherospora sukhomlyniae, a new species of smut fungi on *Hyacinthella* in Crimea (Ukraine)

Kyrylo G. Savchenko*

*Department of Plant Pathology, Washington State University,
Pullman, WA 99164, United States*

* Correspondence to: *kyryll.savchenko@wsu.edu*

Abstract — *Antherospora sukhomlyniae,* a new species of smut fungus parasitic on *Hyacinthella* sp. in Crimea (Ukraine), is described and illustrated.

Key words — anther smut, biodiversity, mycobiota, *Ustilaginomycetes*

Introduction

During a collecting trip for smut fungi in Crimea (Ukraine), carried out by the author in 2009, several specimens of smut fungi were collected. Based on the study of the specimen from anthers of *Hyacinthella* sp. (*Asparagaceae*), I propose here a new smut fungus, *Antherospora sukhomlyniae,* that was collected in Karadag reserve in the southeastern part of the Crimean peninsula.

Materials & methods

Sorus and spore characteristics were studied using dried herbarium specimens. Spores were dispersed in a droplet of lactic acid on a microscope slide, covered with a cover glass, gently heated to boiling point to rehydrate the spores, cooled, and then examined using a Carl Zeiss Axiostar light microscope (LM) at 1000× magnification. For scanning electron microscopy (SEM), spores were attached to specimen holders by double-sided adhesive tape and coated with gold. The surface structure of spores was observed at 15 kV and photographed with a scanning electron microscope JEOL JSM-6700F.

The holotype specimen is conserved in the Herbarium, Department of Biodiversity and Biotechnology of Fungi, Institute of Evolution, University of Haifa, Israel (HAI).

Taxonomy

Antherospora sukhomlyniae K.G. Savchenko, **sp. nov.** Fig. 1

MycoBank 808616

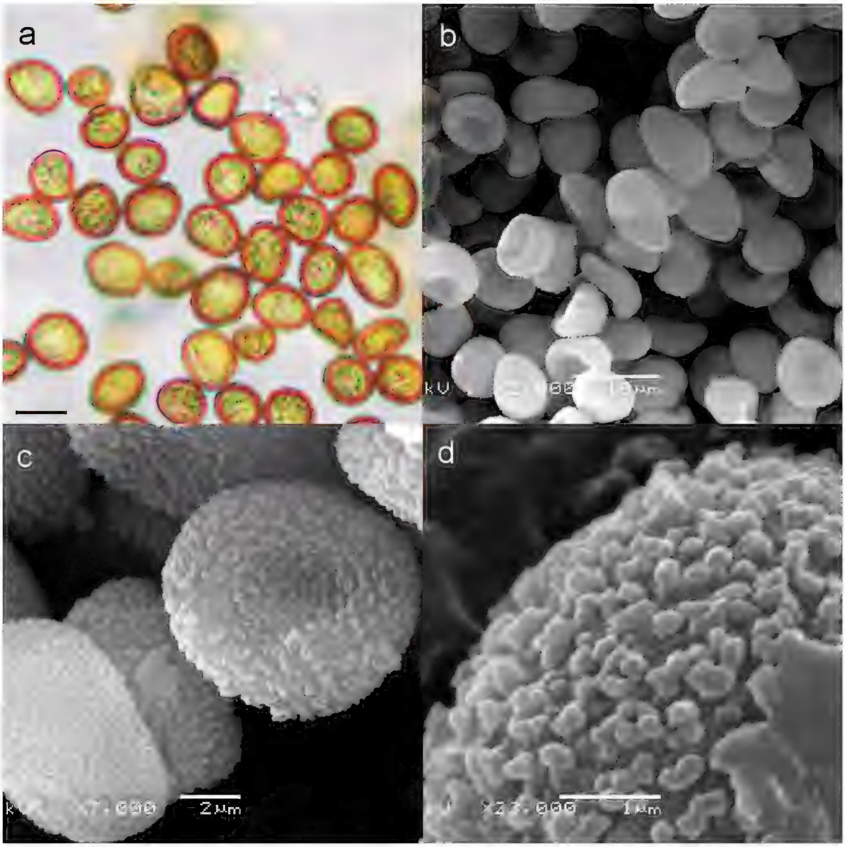

FIGURE 1. *Antherospora sukhomlyniae* (holotype) in flowers of *Hyacinthella* sp.: spores. a = LM; b–d = SEM. Bars: a, b = 10 µm, c = 2 µm, d = 1 µm.

> Differs from all other *Antherospora* species by its host specialization on *Hyacinthella* and from *A. albucae* and *A. urgineae* by its smaller spores, from *A. eucomis* by its irregularly shaped spores, and from *A. tourneuxii* by its thicker spore walls.
>
> TYPE: Ukraine, Autonomous Republic of Crimea, Karadag reserve, in flowers of *Hyacinthella* sp., 5.V.2009, leg. K.G. Savchenko (**Holotype** HAI 6521).
>
> ETYMOLOGY: named in honor of the Ukrainian mycologist Maryna M. Sukhomlyn.

Parasitic on *Hyacinthella*. Sori in all inner floral organs of deformed and swollen flowers, producing blackish brown, powdery mass of spores, for a long time enclosed by the outermost floral envelopes. Infection systemic, with all flowers of the plant infected. Spores ovoid, ellipsoidal, subglobose to irregular, (6.5–)7–10 × 7.5–13(–14) µm, yellowish brown. Spore wall even, ca. 0.8 µm thick, finely densely punctate-verrucose, with finely wavy spore profile.

Distribution – Known only from the type locality in Crimea, on *Hyacinthella* sp.

Comments – Previous studies have demonstrated that while all species of *Antherospora* attack hosts in the *Asparagaceae,* they display a high level of specificity, with each species restricted to host plants from a single genus, or in some cases, from a single species (Bauer et al. 2008, Piątek et al. 2011, 2013). As no *Antherospora* species has been reported on *Hyacinthella,* I propose a new species here.

Antherospora sukhomlyniae belongs to the group of *Antherospora* species with sori destroying all inner floral organs of infected flowers (Vánky 2012), which includes *A. albucae* (Syd. & P. Syd.) R. Bauer et al., *A. eucomis* Vánky, *A. tourneuxii* (A.A. Fisch. Waldh.) R. Bauer et al., and *A. urgineae* (Maire) R. Bauer et al. However, these species can be distinguished from *A. sukhomlyniae:* A. *albucae* by its larger spores (7–14.5 × 9.5–22.5 µm; Vánky 2012); *A. urgineae* by its larger spores (7–12 × 9.5–17.5 µm; Vánky 2012); *A. eucomis* by its regularly shaped spores with thinner spore walls (0.5 µm; Vánky 2009); and *A. tourneuxii* by its thinner spore walls (0.5 µm; Vánky 2012).

Acknowledgments

The author thanks Lori M. Carris and Vasyl P. Heluta for peer-reviewing the manuscript, Shaun Pennycook for useful corrections, and Vitalii Sapsai for help with the SEM microscopy.

Literature cited

Bauer R, Lutz M, Begerow D, Piątek M, Vánky K, Bacigálová K, Oberwinkler F. 2008. Anther smut fungi on monocots. Mycological Research 112: 1297–1306. http://dx.doi.org/10.1016/j.mycres.2008.06.002

Piątek M., Lutz M., Chater A.O. 2013. Cryptic diversity of the *Antherospora vaillantii* complex on the *Muscari* species. IMA Fungus 4: 5–19.

Piątek M., Lutz M., Smith P.A., Chater A.O. 2011. A new species of *Antherospora* supports the systematic placement of its host plant. IMA Fungus 2: 135–142.

Vánky K. 2009. Taxonomic studies on *Ustilaginomycetes* – 29. Mycotaxon 110: 289–324. http://dx.doi.org/10.5248/110.289

Vánky K. 2012. Smut fungi of the world. APS Press, USA.